Moving Communities of Practice forward: the challenge for the National electronic Library for Health and its Virtual Branch Libraries

Sharp, Susan; Yeoman, Alison; Urquhart, Christine

Published in:
Health Informatics Journal

Publication date:
2003

Citation for published version (APA):
Sharp, S., Yeoman, A., & Urquhart, C. (2003). Moving Communities of Practice forward: the challenge for the National electronic Library for Health and its Virtual Branch Libraries. *Health Informatics Journal*, 241-252. http://hdl.handle.net/2160/243

Moving Communities of Practice forward: the challenge for the National electronic Library for Health and its Virtual Branch Libraries

Alison Yeoman, Christine Urquhart and Susan Sharp

Department of Information Studies, University of Wales Aberystwyth, Llanbadarn Campus, Aberystwyth, SY23 3AS

CONTACT DETAILS

Mrs Alison Yeoman, 136 Wellsway, Bath BA2 4SE

Tel: 01225 421525

email: alison.yeoman@blueyonder.co.uk

ABSTRACT

The aim of this evaluation was to examine how specialist portals within the UK's National electronic Library for Health were developing as communities of practice to support continuing professional development. Objectives included a literature review, to inform the development of an appraisal framework for the individual portals, and interviews with portal development teams and stakeholder groups. Appraisals of the Websites and the data from the interviews showed that most of the specialist portals had evolved beyond the initial stages of community of practice development. Further planning of outsourcing would require a balance between maintaining a recognisable identity for the portals without stifling the creativity of the development teams.

Authorship details

Alison Yeoman MSc(Econ), Research Officer, University of Wales Aberystwyth

Christine Urquhart PhD, Senior Lecturer, University of Wales Aberystwyth

Susan Sharp, MA, Research Officer, University of Wales Aberystwyth

Acknowledgements

The authors thank the NeLH team, and the NHS Information Authority for funding this research. We are very grateful to all those who consented to be interviewed for the project.

INTRODUCTION

The National electronic Library for Health (NeLH) in the UK is a Web portal intended for both health professionals and patients. It aims to support the use of evidence in health care practice and policy by providing access to both knowledge (via evidence-based resources) and know-how (e.g. guidelines). One section of the NeLH serves a range of more specialist interests (e.g. Cancer, Emergency Care, Primary Care). At the time of the evaluation – February to June 2002 – these 'sub-portals' were called the 'Virtual Branch Libraries' (VBLs) but they have since been renamed as 'Specialist Libraries'. Another section contains the 'Professional Portals' that support the various health professional groups (e.g. Nurses, Physiotherapists, etc.).

Development of the VBLs was devolved to groups or individuals with the appropriate specialist interests and Web development skills. The NeLH team realised that, although they were not originally developed as communities of practice, the VBLs (and, to a lesser extent, the Professional Portals) did share many of the social learning aims of communities of practice (Wenger, 1998).

The authors of this paper conducted an independent evaluation of the VBLs for the NeLH team. This included:

- A systematic literature review (to determine which factors make communities of practice effective)

- The development and application of an appraisal framework for the individual VBLs
- Interviews with VBL developers and stakeholders
- A usability assessment
- Further scoping studies to aid the development of features to support learning and exchange of experience and knowledge within such a dispersed organisation.

This paper focuses on the findings from the interviews with VBL developers and stakeholders and on the factors identified as likely to impact on the development and potential sustainability of communities of practice supported by the NeLH.

LITERATURE REVIEW

The scope of the review covered research evidence concerning the use of the Internet and intranets to support collaborative working, knowledge management and organisational learning, with emphasis on aspects of concern to the health sector in the UK.

Definitions and explanations of communities of practice vary, but two key concepts identified were : 1) legitimate peripheral participation (Lave and Wenger, 1991), and 2) possible membership for one individual of several different communities of practice (Wenger, 1998). Any community of practice for the NeLH would need to allow for new members to become engaged in the activities of the community to an extent that suits their needs and interests whilst still recognising them as legitimate members of the community even if their level of activity is low. In addition, health

professionals may belong to several communities, representing their various professional and research interests.

The literature review revealed a diversity of styles of communities of practice (Gongla and Rizzuto, 2001; Moreno, 2001) but identified a typical pattern of evolution (Gongla and Rizzuto, 2001) which contained the following stages:

- **Potential** (connecting individuals)
- **Building** (allowing individuals to learn more about each other, share experiences and knowledge, create shared norms)
- **Engaged** (emphasis on access and learning, to provide support to new members and add to the knowledge base)
- **Active** (emphasis on collaboration and shared work tasks)
- **Innovation and Generation** (to develop new products and services, and even spawning new communities of practice)

Individual communities may move backwards and forwards, stick at a particular stage, or rest for a period with a sudden burst of activity to move to another stage. To support the evolution process, tools such as electronic surveys and feedback facilities can help meet the needs of new members as well as promote community story-telling and advance the collaborative knowledge base (Brown *et al.* 2001). The difficulty may be in the timing of the appropriate process support: if communities evolve gradually, then it is possible that too much could be provided too soon. Equally, communities might not be able to progress in their social learning due to lack of a particular tool for collaboration.

When considering factors that impact on the success and sustainability of a community of practice, the recent literature indicates various trends – some of which appear paradoxical:

- Membership size and communication activity have positive and negative effects on the sustainability of an online community (Butler, 2001)
- Particular communication modes are appropriate for particular purposes (Haythornthwaite, 2001; Te'eni *et al.*, 2001)
- Face-to-face communication preceded by either asynchronous or synchronous computer-mediated communication judged more satisfactory than face-to-face discussion not preceded by computer mediated communication (Dietz-Uhler and Bishop-Clark, 2001)
- Choice of computer-mediated communication, and extent of participation in online patient support communities compared to traditional face-to-face support may depend on the level of support available elsewhere (Turner *et al.*, 2001)
- Computer-mediated communication may have a positive effect on those who might have lower status within a group, e.g. women scientists among scientists in general (Walsh *et al.*, 2000) and may allow easier communication in difficult situations – e.g. breast cancer support networks (Shaw *et al.*, 2000)
- The effect of anonymity may not necessarily improve the outcomes with group decision support systems (meta-analytic review) (Postmes and Lea, 2000)
- Virtual network building requires role clarity, good project management, training, relationship building and demonstration of success (community health research training (Lau and Hayward, 2000)

- Last, but not least, rewards (e.g. financial or kudos) appear to motivate staff to participate in knowledge sharing and intranets (Hall, 2001). People participate in virtual communities of practice out of shared interest, reciprocity and assumed norms that it is the right thing to do (Wasko and Faraj, 2000)

Interpolation of the evidence suggests that:

- The democracy and 'inclusivity' of virtual communities can be overstated. Few, if any, of the studies, which show that anonymity afforded by computer mediated communication increases social inclusion of lower status groups, have been conducted over a sufficiently long time period to demonstrate a long-lasting effect.
- Face-to-face communication is still important, particularly to support initial use, but that users become more sophisticated and versatile with more experience in use of computer mediated communication.
- Optimum group size for a virtual community in terms of effective communication is hard to estimate. It is likely to be related to perceived rewards, needs, and effort involved, as well as the role of the virtual community within the wider social network of the individual.
- Effective functioning of a virtual community depends, just as in the physical world, on the group having a purpose and 'doing something'.

There may also be differences of professional communication patterns (Kling and McKim, 2000; Orlikowski and Yates, 1994) which affect acceptability of virtual communication and the preferred format of virtual communities. For communities of practice within the NeLH it might be expected that the presentation of information

and the type of activities will vary from one Professional Portal to another, and that VBLs, which are multidisciplinary in emphasis, might face considerable challenges in trying to cater for the needs of different disciplines as well as the needs of a lay audience.

METHODS

The requirements of the evaluation specified a focus on the critical success factors identified by the NeLH team (and which had formed the basis of their original negotiations with the Virtual Branch Library developers):

- functionality
- usability
- content
- stakeholder involvement
- project management.

These critical success factors were used as the basis of a framework for the evaluation of the VBL portals themselves – 'Website appraisals' (Figure 1 for an outline list of appraisal criteria). Preliminary Website appraisals for each of twelve VBLs selected to participate in the study (on the basis of level of activity in Spring 2002) were conducted prior to meeting members of the VBL development teams. These appraisals were then refined and expanded once supplementary information had been obtained from the interviews. Copies of the individual completed appraisal forms were sent to the relevant VBL developers for comment and the final report incorporated their feedback.

This requirement to evaluate the VBLs in terms of the critical success factors listed above led the research team to identify a range of stakeholders for interview with the intention of accessing a broad range of groups who had links with the VBLs/Professional Portals or provided similar services to those available via the NeLH. The sample also included groups that play a role in disseminating or creating the evidence-base or that contribute to the development of communities of practice. In all, representatives from eighteen stakeholder organisations agreed to take part. The challenge of arranging interviews within the timescale of the project (five months) meant that some groups were better represented in the sample than others (e.g. it proved possible to interview just one Social Care representative but three of the Cochrane Groups were happy to participate). The numbers in the following list refer to organisations rather than interviewees since in some cases more than one representative was present at the interview:

NHS Direct Online (a Web-based health information service for the public)

Regional Learning Network (N=1)

Expert informant from a Social Care environment (N=1)

Patient Advice and Liaison Service (N=1)

Specialist professional journals providing Web-based services (N=2)

Representatives from professional organisations (N=2)

Librarians from professional organisations (N=3)

Cochrane Groups (N=3)

Health-related charities (N=4)

The usability criterion was assessed through the Website appraisals and through twenty-four 'talk-aloud' interview sessions where individual users or potential users (community- and hospital-based health professionals) were asked to look at the NeLH Website and browse the VBLs and Professional Portals, commenting aloud on their impressions of the content of each site and of whether/how they might use it (Hancock, 1987; Hancock-Beaulieu, 1991; Hert, 1992). All qualitative data were analysed using QSR N6 software.

RESULTS AND DISCUSSION

Using the Website appraisal framework and expanding on this through the interviews with development teams and stakeholders, it was possible to take stock of the development status of the VBLs and look to factors that could affect their longterm sustainability.

Development of the VBLs to date

A variety of different models for management of the VBLs had emerged because the teams had been given freedom to decide on the content and organisation of their individual portals.

There were different sizes of development teams with different skills mixes; some teams had adopted a design toolkit produced by the NeLH others had not; some had outsourced aspects of the development or set up reciprocal arrangements with stakeholder organisations. For example, in one model a commercial organisation had been contracted to support the development of several VBLs. Another team chose to embed the VBL within a professional society and user community, seeing this as a good way of ensuring that the VBL remained sustainable and appropriate.

A key difference was access to funding. Some VBLs received only central NeLH funding, or had secured just small amounts of external support, and had found it difficult to make progress and plan ahead, especially since there were uncertainties over when further funding would arrive. Others had received more substantial amounts from other organisations to develop certain aspects of their service. Although this has advantages in that progress can be made more quickly it raises questions of ownership of the information resources developed.

From the pooled experiences of the developers the researchers identified the following attributes as being desirable in a VBL team:

- Enthusiasm and commitment;
- Good skills and know-how mix in the team (including, ideally, technical, information, and project-management skills);
- Strong connections within the community of practice (e.g. with potential stakeholder organisations and content providers);
- Strong communications and management skills for bringing stakeholders and experts onboard and supporting effective teamworking (some interviewees noted problems getting volunteers to sit on steering committees, ensuring prompt delivery of content material, etc.);
- Preferably experience of running a similar service;
- A creative and forward-looking approach to how the service could develop, e.g. linking in with other initiatives and systems;
- Having the right skills-base and approach to carry projects beyond the initial stages – people who are the right ‘champions’ to start projects are not necessarily the best people to carry them on.

At the time of the evaluation, some components of the community of practice 'mix' had been given more prominence than others. Some VBLs had not developed active discussion lists but all had passed through Stage 1 (Potential) of the Gongla and Rizzuto (2001) Model (*see above)*, having identified their potential community members and made efforts to bring them together through the provision of useful information. They had moved onto the second and third stages of 'Building' and 'Engaged' status, providing a common repository of knowledge, document and library systems and creating the foundations of a collaborative working environment. Members were encouraged to contribute to the knowledge-base but a true culture of community 'storytelling' had still to emerge. All invited feedback and were keen to shape the services to meet the needs of their community.

Moving forward

Moving into the next stage (Active) would highlight collaboration. This is in terms of collaborative working within the community of practice but also collaboration between VBLs, with stakeholders and, eventually, integration of the communities' technology with other NHS systems (as appropriate). Some developers had already begun to turn their thoughts towards the implications of this.

The evaluation took place at a key point in VBL development, as the NeLH prepared to begin a tendering process for allocation of further funding for the VBLs. The development teams hoped to continue their work and move forward with a more stable funding stream. Both the central NeLH team and the individual VBL teams saw the tendering process as a watershed – a time for taking stock (hence the evaluation) and for deciding on future strategies.

Integration and a move towards more collaborative working, fundamental requirements of taking the VBLs into the final stages of the community of practice development model, would not necessarily be easily achieved. Most interviewees accepted that a degree of standardisation of approach across the VBLs was desirable. However the challenge would be to agree on the right level of standardisation. Features of greater integration and standardisation were identified as:

- *Developing a quality-standard*. VBL developers, stakeholders and users all recognised access to high-quality reliable information to be of prime importance. Users like information that comes from a respected source and is current yet professional groups may have different priorities. For example, one user said they regularly look for information on US research Websites since a key factor is keeping up-to-date with cutting-edge developments, whereas for another relevance to the UK was paramount. The challenge for the development teams is to satisfy the needs of a diverse range of users whilst ensuring that the information supplied is of high quality. Developers agreed that the ideal would be Websites dedicated to best evidence but in some situations this evidence may not be available.
- *Unity of format and 'branding'*. Given that users can be members of more than one community of practice (Wenger, 1998) – for example one user had recently accessed both the Nursing Portal and the Dietician's Portal – it would seem logical to facilitate the process of moving from one portal to the next. In the talk-aloud sessions users expressed a preference for seamless searching and browsing and confirmed that it would be helpful to be able to search effectively across the whole NeLH site. Some said they were sometimes

uncertain as to where to look for information, especially when they thought it might be available from different perspectives in several VBLs. Since completion of the evaluation, a metasearch tool has been introduced. Other users were perplexed by the fact that the individual VBLs had their own format and design but this was not always seen as negative since it made the experience of searching ‘more interesting’.

- *Ease of integration with other systems:* communities of practice moving into the ‘Active’ stage of development should have a strong technical infrastructure with sound underlying indexing principles to facilitate linking into clinical systems – ideally at an appropriate point for decision support. Users could be given the opportunity to personalise and customise the experience of using the NeLH to suit their needs.

To encourage greater unity the central NeLH team had developed a software toolkit that had been rolled out to the individual VBLs to a mixed reception. Although greater integration leading to easier access for the user was viewed positively, interviewees expressed only cautious support for the toolkit. For some VBLs, the toolkit was introduced after they had invested time and resources in designing the Websites. Some teams had sought funding from other sources and had developed key features of their sites that are not compatible with the toolkit. Others felt that adopting the toolkit would result in a complete redefinition of the VBL and that they did not have the necessary funds to achieve this or that they had adequate technical support within the team to ensure superior functionality to that provided in the existing version of the toolkit.

Even teams who accepted the toolkit on principle had concerns about whether it would be flexible enough to find a workable balance between the structure and the content that they would like to create. These and similar problems revealed the difficulties of applying a generic tool to such a varied range of projects.

The strength of the toolkit was seen to be the opportunity to build a consistent and robust infrastructure. The challenge is to prevent this being too prescriptive and stifling the creativity of the individual VBLs.

This same tension was identified in a study of Webmasters in Higher Education (HE) institutions (Armstrong *et al.*, 2001). The history of the situation was different in that the VBLs had initially been given a lot of freedom to define their own sites whereas the trend identified in HE was for a previously centralised system to begin 'devolving' responsibility to content providers (e.g. academic departments), yet the challenge is essentially the same. Development of the NeLH toolkit is mirrored in HE by the provision of guidelines and templates created by the central Web team. Such templates allow content providers a certain amount of creative freedom whilst ensuring that Web pages meet the required quality standards and keep to the preferred style of the institution, thus reinforcing the 'visual identity' or branding of the whole.

This is a similar approach to that taken by the Department of Health for the templates available in its recent Toolkit for Producing Patient Information. The Department of Health templates follow a consistent design to ensure that 'the final document supports the NHS corporate identity, values and communications principles' (Department of Health, 2002). To encourage use of their templates, HE Webmasters

cultivated strong communication channels through personal contact with designated 'Web coordinators' from each group of content providers. The value of good communication was also identified by the VBL interviewees as fundamental to the relationship between the NeLH and development teams.

The relationship of the NeLH to the VBL (and Professional Portal) development teams is certainly more complex than that of the HE Webmasters to their content providers. The VBL teams were recruited by the NeLH and given funding to supply a service. In some ways this followed a conventional outsourcing pattern (Currie and Willcocks, 1998; Grover, *et al.*, 1998; Kern and Willcocks, 2000) but outsourcing contracts would usually see a more formal relationship between an organisation and its suppliers. Furthermore, the VBL teams themselves have cooperated more than competing suppliers would normally do. There are competitors in the marketplace however, as some commercial publishers offer similar resources and services.

Although the evaluation was intended to inform the NeLH's future plans for managing the VBL programme, interviewing the development teams at a time of uncertainty and possible change had drawbacks. Development teams were looking to the NeLH for more stability and clarification of what was expected of them and were, understandably, unable to give firm details of future plans. Ideally a wider range of interviewees from the stakeholder population would have been approached but the researchers were constrained by the project timescale and by the fact that some stakeholders, notably professional journal publishers, either declined to participate due to commercial sensitivity or supplied only partial information.

CONCLUSION

A systematic review of the evidence indicated the emergence of common trends, and some paradoxes, in the building and sustaining of communities of practice. The appraisals of the portal Websites and the interviews confirmed that the VBLs and professional portals could (and should) be viewed as communities of practice.

The NeLH has followed an outsourcing model that initially gave the development teams a lot of independence in terms of the content and presentation of the Websites. This model has both advantages and disadvantages. Although most development teams felt they had taken an appropriate approach for their intended community members, a solution has now to be found to the need to promote NHS identity and interoperability without stifling creativity.

Although the VBLs had all evolved at different rates and followed different approaches, their pattern of development could be mapped onto a framework of development identified in the systematic review (Gongla and Rizzuto, 2001). Most of the VBLs had evolved beyond the initial stages of community of practice development. To move forward into the final stage the focus will need to be on interactivity and collaborative working. This requires a greater emphasis on activities promoting trust within the communities of practice themselves. Greater transparency and accountability between the development teams and the NeLH will also be required.

Critical success factor	Questions
Functionality	1. Are the purpose, aim, and identity clear? 2. Are there ways of identifying and locating community members? 3. Is there a clear knowledge management framework, common repository? 4. What functions support newcomers, or visitors? 5. How is evaluation, audit and community 'sensing' achieved? 6. How are links with other groups, and organisations presented? 7. How might policy making in the Department of Health be supported?
Usability	1. How are individuals brought together? 2. Are the roles of participants and the norms of behaviour clear? 3. Is the organisation of knowledge appropriate to the community? 4. Does the process of feedback work transparently?
Content	1. Are there directories of members or equivalent? 2. Does the range of content include document and library systems, community 'stories', record of collaborative work efforts? 3. Are there decision making and analytical tools as well, to support application of the content? 4. Are there links with other systems in the workplace, such as the Electronic Patient Record?
Stakeholder	1. What types of participation are possible – and can participants

involvement	(professional societies, patient groups, research workers, charities, commercial organisations) move to a level of participation appropriate to their needs? 2. How is personal identity and communal identity supported? 3. Are the rhythm of events, news for the workplace reflected? 4. What rewards of membership are apparent? 5. What types of collaborative interaction might be supported? 6. What type of mentoring is available? 7. How is primary care taken into account? 8. Are patients stakeholders, and what might be the relationship with NHS Direct Online or similar?
Project management	1. How is 'senior management' represented? 2. Is there a core of community leaders? 3. How is leadership interpreted? 4. What evaluation mechanisms exist, and how are they acted on? 5. How are diverse roles identified and represented? 6. What mechanisms are there for building trust among community members?

Figure 1: VBL Website appraisal framework

REFERENCES

Armstrong, C. J., Edkins, J., Lonsdale, R. E., *et al.* (2001). HEINUS Higher Education Institutions Network Usage Study. Final report to the Joint Information Systems Committee. Aberystwyth: DILS.

Brown, J.S., Denning, S., Groh, K., and Prusak, L. Storytelling [Web Page]. (2001) Available at http://www2.parc.xerox.com/ops/members/brown/storytelling/JSB.html. (Accessed 2001 Dec 26).

Butler, B.S. (2001) Membership size, communication activity, and sustainability: a resource-based model of online social structures. *Information Systems Research* 12(4):346-362.

Currie, W. L., and Willcocks, L. P. (1998) Analysing four types of IT sourcing decisions in the context of scale, client/supplier interdependency and risk mitigation. *Information Systems Journal* 8:119-143.

Department of Health (2002) Toolkit for producing patient information. Available at http://www.doh.gov.uk/nhsidentity/toolkit-patientinfo.pdf. (Accessed 2003 Mar 12).

Dietz-Uhler, B. and Bishop-Clark, C. (2001) The use of computer-mediated communication to enhance subsequent face-to-face discussions. *Computers in Human Behavior*, 17(3):269-283.

Gongla, P. and Rizzuto, (2001) C.R. Evolving communities of practice: IBM Global Services experience. *IBM Systems Journal* 40(4):842-862.

Grover, V., Teng, J.T.C. and Cheon, M.J. (1998) Towards a theoretically-based contingency model of information systems outsourcing. In L.P. Willcocks, and M.C. Lacity (eds) *Strategic Sourcing of Information Systems.* Chichester: John Wiley & Sons Ltd, pp. 79-101.

Hall, H. (2001) Input-friendliness: motivating knowledge sharing across intranets. *Journal of Information Science* 27(3):139-146.

Hancock, M. (1987) Subject searching behaviour at the library catalogue and at the shelves: implications for online interactive catalogues. *Journal of Documentation* 43(4): 303-321.

Hancock-Beaulieu, M., Robertson, S. and Neilson, C. (1991) Evaluation of online

catalogues: eliciting information from the user. *Information Processing & Management* 27(5): 523-532.

Haythornthwaite, C. (2001) Exploring multiplexity: social network structures in a computer supported distance learning class. *Information Society* 17(3):211-216.

Hert, C.A. (1992) Exploring a new model for understanding information retrieval interactions. In D. Shaw (ed) *Proceedings of the Fifth Annual Meeting on the American Society for Information Science* Medford, NJ: Learned Information Inc, for ASIS, pp. 72-75.

Kern, T., and Willcocks, L. (2000). Exploring information technology outsourcing relationships: theory and practice. *Journal of Strategic Information Systems* 9(4): 321-350.

Kling, R. and McKim, G. (2000) Not just a matter of time: field differences and the shaping of electronic media in supporting scientific communication. *Journal of the American Society for Information Science* 51(14):1306-1320.

Lau, F. and Hayward, R. (2000) Building a virtual network in a community health research training program. *Journal of the American Medical Informatics Association* 7(4):1252-1274.

Lave, J. and Wenger, E. (1991) *Situated Learning: legitimate peripheral participation*. Cambridge: Cambridge University Press.

Moreno, A. (2001) Enhancing knowledge exchange through Communities of Practice at the Inter-American Development Bank. *Aslib Proceedings 2001* 53(8):296-308.

Orlikowski, W.J. and Yates, J. (1994) Genre repertoire: the structuring of communicative practices in organizations. *Administrative Science Quarterly* 39(4):541-574.

Postmes, T. and Lea, M. (2000) Social processes and group decision making: anonymity in group decision support systems. *Ergonomics* 43(8):1252-1274.

Shaw, B.R., McTavish, F., Hawkins, R., Gustafson D.H. and Pingree, S. (2000) Experiences of women with breast cancer: exchanging social support over the CHESS computer network. *Journal of Health Communication* 5(2):135-159.

Te'eni, D., Sagie, A., Schwartz, D.G., *et al.* (2001) The process of organizational communication: a model and field study. *IEEE Transactions on Professional Communication* 44(1):6-20.

Turner, J.W., Grube, J.A. and Meyers, J. (2001) Developing an optimal match within online communities: an exploration of CMC support communities and traditional support. *Journal of Communication* 51(2):231-251.

Walsh, J.P., Kucker, S., Maloney, N.G. and Gabbay, S. (2000) Connecting minds: computer-mediated communication and scientific work. *Journal of the American Society for Information Science* 51(14):1295-1305.

Wasko, M.M. and Faraj, S. (2000) "It is what one does": why people participate and help others in electronic communities of practice. *Journal of Strategic Information Systems* 9(2-3):155-173.

Wenger, E. (1998) *Communities of Practice: learning, meaning and identity*. Cambridge: Cambridge University Press.